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Project Narrative

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Integrating a Care Continuum Through Telepsychiatry:
Solving the Challenges of Medicaid Managed Care

I. PROJECT PURPOSE

The Problem: In spite of rapid medical advancements and great changes in the healthcare system, mental health services continue to be underfunded and difficult to access for many persons, particularly those residing in rural areas, far away from large medical facilities or homebound. In 1990, more than 10 million Americans were estimated to have serious mental illness (Center for Mental Health Services, 1999). Research indicates that the cost of mental illnesses in the United States, including indirect costs such as days lost from work, was $148 billion in 1990, the last time the total bill was measured (NIMH, 1999). While it may not be physically nor economically feasible for physicians or patients to travel great distances, people in remote areas have the same needs for mental health services as their urban counterparts. This is the challenge for healthcare providers who service low-income clients such as Medicaid patients.

One group often ignored in the search for innovative health solutions such as telehealth is the Medicaid population. The Medicaid program was designed to provide health care and long-term care to low-income individuals, and is publicly financed by state and federal governments. Growth in Medicaid expenditures has outpaced all other spending in the health care sector (Stuart & Weinrich, 1998). State spending on Medicaid reached an average of 20 percent of state budgets by 1994 (Stuart & Weinrich), which required states to implement alternative funding plans for this population. Most states responded by facilitating enrollment of Medicaid populations into managed care. Medicaid managed care was developed in response to increasing pressure to control state and federal Medicaid spending, and capitation rates for services are on average lower than commercial rates. This has caused important changes in how health care is financed and delivered (Henderson & Markus, 1996). LifeWays is a not-for-profit managed care organization that is responsible for providing 24-hour access to behavioral health care for the Medicaid population base that is severely mentally ill in Jackson, Hillsdale, and Lenawee counties in rural Michigan. (See Appendix C for full description of LifeWays, Inc.) Because LifeWays is the Medicaid managed Care provider for this tri-county region of Michigan, it has the added challenge of delivering quality behavioral health care to a large population at a capitated rate. The bottom line is that LifeWays is responsible for the mental well being of over 6,000 persons at a fixed rate. It, like Medicaid managed care providers around the country, is in desperate need of a cost-effective means to provide a high quality continuum of behavioral health services.

The Solution: Communities today are seeking new solutions to address the important health care issues of rising costs, improved access to services, and acceptable levels of quality and continuity of care. For example, the increasing demands for managed care are creating new relationships among physicians, patients, health care providers, insurance companies and government agencies, indicating the need for delivery systems which allow for full participation and access for the disadvantaged. Furthermore, recent advances in electronic telecommunications technologies present new opportunities for minimizing

distances between and among caregivers, informational and educational services, and patients. New technologies such as telehealth are emerging as one approach to address some of these issues. Telehealth is especially important for organizations that serve populations in rural and remote areas. Even more importantly, it offers unique advantages to health providers required to provide care on a fixed, shoestring budget. This project seeks to create a unique telehealth network that will address the full continuum of care for the tri-county rural region in Michigan. There are four phases to this project which will offer services to patients ranging from those in mental health clinics, those in their primary care physicians' offices, those in an adult crisis stabilization center, and those trying to live independently in their homes. Research in the behavioral health literature points out that effective care for the severely mentally ill often extends beyond a simple visit to a psychiatrist's office. Instead, it is vital to create a network of services that cover the range of services required to help these patients gain control of their mental illness.

For logistical reasons, the current project will be rolled out in four major phases over a two-year time period. Telemedicine literature documents the importance of rolling out a project in a measured fashion to facilitate training, launching, problem resolution, full-scale implementation and feedback mechanisms to improve service.

Phase 1: Hub-spoke Telepsychiatry Services

Currently, the majority of psychiatrists providing consults to patients in this tri-county area practice predominately at the Jackson facility. With travel times in excess of one hour from Jackson to Hillsdale or Lenawee counties, telemedicine offers an effective means for patients located in these counties to see a psychiatrist in a timely and convenient manner. In this first phase, psychiatrists will be located at the hub (Jackson) and provide psychiatric services to clients at the spoke sites (Hillsdale and Lenawee). Services will be provided using a PC-based videoconferencing system. A total of three units will be employed with a 27" monitor at the three locations. A larger monitor will be employed because it is expected that the system will also be used to provide education and in-service to staff members. The system will operate at a speed of 128Kbps over a BRI ISDN connection. An on-site nurse will be available to make necessary physical assessments.

Phase 2: Primary Care Physician-Telepsychiatry Hub Network

The second phase of this project directly addresses the problem of full continuity of care for severely mentally ill patients. Telemedicine units will be placed in the offices of four primary care physicians practicing in the region. Often a patient receiving behavioral health services will visit their primary care physician with symptoms which are actually related to their mental illness or related prescriptions. In this phase, a primary care physician will have telehealth equipment in his/her office and will be able to link directly with a LifeWays psychiatrist. The psychiatrist will then conduct a consult with the patient over the telehealth system. The psychiatrist will confer with the primary care physician over the telehealth system at the conclusion of the consult to facilitate in the treatment planning. This innovative delivery model unifies the behavioral and physiological treatment of a patient, two areas often treated separately in traditional medicine.

Phase 3: Adult Crisis Home To Hub Network

Patients who are deemed as dangerous to themselves or others are sometimes placed in a LifeWays Adult Crisis Home from one to 14 days in an attempt to resolve their dilemma without requiring costly hospital admissions. Phase three of the project will link the adult crisis home with the Jackson LifeWays office so that clients can access psychiatric or support services on a daily basis from these providers. In addition, the adult crisis home full-time medical director will have telehealth equipment in his home so that clients can access his care after hours or at times they may need him which extend beyond his one daily visit.

Phase 4: Linking Directly To Patients' Homes

In the fourth and final phase, telehealth is used to bring care directly into the homes of patients who would benefit from accessing mental health services from home. Two types of patients would qualify for this service. First, those clients who have a physical disability or are unable to leave their home without undue difficulty will be provided with a telehealth unit for their home. The second type of client that will qualify for home health services are those who are judged to be in crisis.

Measurable Outcomes: The goals of this project are to (1)find cost effective ways to maximize access to behavioral health services, (2)increase the quality of care through enhanced access, and (3)enhance the continuum of care by providing services to mental health patients who are en route to becoming stable/healthy. Expected outcomes include decreased cost per covered person, increased access to a wider range of services, decreased length of treatments per episode, decreased number of visits to all healthcare providers, and improved patient and provider satisfaction. The evaluation component of this project will formally address three research questions:

RQ1: What are appropriate telehealth clinical services and what are the clinical outcomes?
RQ2: What is the average cost and savings associated with the creation of a Care Continuum Network through telepsychiatry?
RQ3: What are the optimal delivery procedures for this innovation and how does this service impact patient and provider satisfaction?

II. INNOVATION

This project seeks to employ a mixture of technologies to create a full care continuum network of services. Phase I of the project will use a PC-based videoconferencing system operating at a speed of 128Kbps over a BRI ISDN connection. Phase II of the project seeks to measure levels of satisfaction between low-level, POTS-based equipment and ISDN-based systems. Two primary care physicians' office will be provided with a POTS-based system for the entire project and two primary care physicians' office will be provided with a PC-based system which operates at 128 Kbps for the entire project. All data between the two groups will be compared. Though it provides the service at a significantly lower bandwidth, POTS offers a ubiquitous

telecommunication option for this project. We seek to formally address the debate between higher bandwidth and a low bandwidth, ubiquitous telecommunication solution in this phase of the project. Phase III of the project will employ a PC-based system to link the Adult Crisis Stabilization Center with the psychiatrists and support staff at Jackson. A POTS-based system will also be used to link the center with the medical director at his home. Finally, 20 POTS-based systems will be employed and rotated in Phase IV of this project to bring care directly into the homes of a targeted 100 patients. A POTS-based system provides a ubiquitous and cost-effective way to link mental health providers with their clients at home. Table 1 provides a summary of the phases and equipment to be used.

Table 1. Phase and Equipment Summary

Phase	Technology
1. Clinic hub linked to two clinic spoke sites	• PC-based videoconferencing via BRI ISDN
2. Four primary care physician offices in tricounty area(with multiple physicians in a practice) linked with LifeWays psychiatrist at hub clinic in Jackson	• Two offices equipped with PC-based videoconferencing. • Two offices equipped with POTS-based videoconferencing.
3. Adult crisis stabilization home linked with LifeWays psychiatrists and support services in Jackson as well as directly to the home of the facility's medical director for after hours services.	• PC-based videoconferencing to link adult crisis stabilization center to LifeWays providers in Jackson. • POTS-based videoconferencing to link center to home of medical director.
4. Homebound or crisis patients linked from their homes directly to LifeWays providers.	• POTS-based videoconferencing units.

III. DIFFUSION POTENTIAL

According to the National Health Care Financing Administration, health expenditures in the United States are projected to total $2.2 trillion and reach 16.2 percent of Gross Domestic Product (GDP) by 2008 (HCFA, 2000). Obviously no one disputes the rising and rampant costs of health in our country. Couple this with the confounding fact that every state in the country is desperately searching for ways to control hemorrhaging Medicaid budgets, and it soon becomes apparent that this project has the potential for swift diffusion throughout the country. If our project effectively documents feasibility, health and cost outcomes, and delivery requirements, states will be ecstatic about a solution which helps them to deliver higher quality mental health services within limited budgets. It is actually somewhat ironic that very few, if any, telehealth programs are actually created specifically to address Medicaid managed care issues, for this is perhaps the payor source most desperate for a solution to retain solvency. Though perhaps not as glamorous as other telehealth proposals, this project also applies low-cost and easily accessible technical solutions. This is yet another reason why it will be easy for other states to adopt and replicate this project sooner rather than later.

In order to ensure that other states and mental health providers hear about this project, it is vital that we disseminate our results in a timely manner. It is our intent to present research from this project at a wide range of national conferences, such as the American Psychiatric Association, American Psychological Association, American Telemedicine Association, HIMMS, National Managed Healthcare Congress, and the

National Association of Community Mental Health Boards. In addition, we will be submitting papers for publication to a range of journals and magazines, such as the Journal of Telehealth and Telecare, the Telemedicine Journal, and various psychological and psychiatric journals.

Why this project? Telepsychiatry is not new. Indeed, Wittson and colleagues first launched telehealth in the late 1950's by providing telepsychiatric services (Jones & Colenda, 1997; Wittson , Affleck & Johnson, 1961). However, creating a continuum of care to provide behavioral health services in a variety of settings without waiting for the physical presence of the healthcare professional is new. Eliminating the waiting time that may lead to an escalation of the patient's condition should decrease the need for increased intervention and save money, as well as reduce patient and family duress.

IV. PROJECT FEASIBILITY

Technical Approach: A team of physicians, nurses, technicians and administrators at LifeWays was assembled to evaluate the technology options. It was vital to define the technical constraints of providing this service to patients with behavioral health concerns. Because the project involves delivering a continuum of behavioral health solutions, it was necessary to develop a multi-stage project that can be rolled out over time. During assessment of the equipment, providers determined that they must have real-time interactivity that was deemed necessary for adequate care and communication. Two technologies were selected based on requirements and logistical constraints: PC-based and POTS-based videoconferencing systems. In some circumstances, technical support staff is available. Thus, PC-based systems operating over BRI ISDN were selected. In other cases, units will be installed at locations with minimal technical support, such as in the home. Because physicians and patients would be operating the equipment after installation, we needed something easy to use. In addition, these patients simply cannot wait 2-3 weeks for a digital ISDN line to be installed in their homes. Because many of the patients requiring these services live in rural areas POTS (Plain Old Telephone Service) is the only real option. As DSL (Digital Subscriber Line) technologies become disseminated, we hope to enhance this project by using xDSL on existing copper wire into the home. At this point, however, we must start with a system that can run into anyone's home via twisted pair wire. We selected an interactive video system that operates through an analog phone line and an ITV unit. The brand selected is available off the shelf (Aiptek, see **http://www.aiptek.com** for more information). LifeWays personnel (physicians, nurses and technical staff) tested the feasibility of using this POTS equipment during project planning

This technical solution exhibits strong *interoperability* as one set of equipment is based on H. 323 standards, the other on H.324 standards. Because of its relative low cost and "plug and play" status, this equipment can easily be utilized by other community organizations involved in providing psychiatric services. After extensive research, this was found to be the most reasonable, low-cost option, with no other *technical alternative* identified to meet telepsychiatric objectives. This project is taking advantage of an existing infrastructure and products in order to save valuable time required for the actual provision of psychiatric services. The potential for enhanced *scalability* is quite strong for this

project. Because of the use of an existing telecommunication infrastructure and products that can be purchased off the shelf, the number of telepsychiatric recipients and regions providing this type of care can grow quickly if the results of the evaluation indicate this is appropriate. *System maintenance* is not complex for this project and will be conducted by a technician, available to LifeWays personnel. This task will require inventory management and allocation.

Applicant Qualifications: A team of experienced and dedicated psychiatrists, psychologists, social workers and nurses, as well as trained support staff from LifeWays, will partner with Pamela Whitten, Ph.D., of Michigan State University, who has extensive experience in the administration and evaluation of telemedicine projects. Graduate students and support staff from Michigan State University will also assist with the project. Please refer to Appendix D for more information about the formal project team.

Budget, Implementation Schedule and Timeline: The proposed budget includes equipment, telecommunication costs, personnel (service and evaluation), overhead, and travel expenses. Matching is through provision of matching personnel and equipment costs. In addition, the costs of the mental health services will not be paid for by the grant but by the payer. Nevertheless, these are part of the costs of the project, but no piece will be born by the NTIA. The implementation schedule (See Appendix B) outlines the salient activities and project milestones across the two-year period. Continual data collection will occur throughout the implementation schedule.

Sustainability: A strength of this project is the fact that it is building a service into an existing health infrastructure of providers and payor. LifeWays already exists in full form equipped with all clinical and administrative expertise for behavioral health services. The challenge is to enable clients to access this expertise in cost-effective ways. This challenge is addressed by this telehealth project. In addition to an existing health delivery system, this project is sustainable because of an existing reimbursement structure. These services are provided as part of a capitated reimbursement structure that is in place. While many telehealth programs attempt to add a new service that must reinvent a reimbursement schema, this project is being placed within an existing service and payment infrastructure.

V. COMMUNITY INVOLVEMENT

LifeWays is a managed care organization that contracts with a network of private companies and professionals throughout Jackson, Hillsdale and Lenawee counties in rural Michigan to provide 24-hour access to behavioral health care services. To successfully reach its targeted Medicaid population, LifeWays must work in close coordination with a variety of community agencies. The planning for this project began in 1999 with discussions between LifeWays staff and community mental health clinics, a sampling of local practitioners, private practice therapists, the health department, members of the Intermediate School District, the local 24° Behavioral Health Access Program, and the Assertive Community treatment Program. The project has evolved to its present state of planning with the ongoing input and cooperation of these various agencies. (See Appendix F for representative letters of support.)

Privacy: Confidentiality of medical records and treatment information is critical in all medical situations, particularly in the provision of behavioral health services. LifeWays and MSU staff will be inserviced on patient and record confidentiality and privacy.

VI. REDUCING DISPARITIES

Service and research in telehealth services for the Medicaid population has traditionally been neglected. Philosophically, low-income patients are a group that has limited access to benefits, information and even a high standard of care. However, this project seeks to turn this phenomenon upside down by using technology to facilitate access and quality of care, and to control overall costs. Through telehealth, we can potentially even the playing field for the level of mental health services made available for lower income Americans.

LifeWays is the Medicaid preferred provider for behavioral health services to residents in Jackson, Hillsdale, and Lenawee counties. Jackson County is located in south central Michigan and had a population of 156,150 in 1995. As of July 1999, 16,463 Jackson County residents were on Medicaid, approximately 11 percent of the county's population. Hillsdale County, also located in south central Michigan, had a population of 45, 780 in 1995. Hillsdale County has been designated as a health professional shortage area and as being medically underserved. Approximately nine percent of the county's residents (4,226) were on Medicaid in July 1999. In addition, almost 9,000 residents of Lenawee County were on Medicaid in 1999. With current projections, LifeWays will serve more than 7,000 cases in FY 2000. In Michigan, up to 30 percent of residents in many rural counties participate in Medicaid at some point in the year (Before Managed Care, 1997). In nearly all counties, at least one in ten residents depends on the program for access to care (Before Managed Care, 1997), and participation in the program is increasing. The largest group of residents in Michigan enrolled in Medicaid services is adults in families with children and the children themselves. However, there are also a significant number of older adults who are covered under Medicaid and require behavioral health services.

This innovative project plays an important role in reducing the disparity of mental health services provided to the Medicaid population. It is particularly timely as managed care is becoming a preferred method for states to control their Medicaid budgets and to assure access to and coordination of services. Managed care Medicaid covers more than one-fifth of the Medicaid population (Howell, 1996); by 1996 this amounted to more than 13 million people (Policy Perspectives, 1997). Poverty, lack of education, and risk behaviors in the Medicaid population create particular challenges for providers seeking to encourage patient self-management (Stuart & Weinrich, 1998). This project offers the potential of closing the gap of accessible quality behavioral health services available to low-income Americans.

VII. EVALUATION and DOCUMENTATION

Evaluation Plan: The strength of this telemedicine proposal is its focus on an evaluation plan that will answer vital questions far beyond the simple feasibility of this project. In order to provide information that can be utilized for future telemedicine projects, the evaluators seek to measure clinical efficacy and outcomes, track expenses to analyze the cost effectiveness of this service, and measure procedures and resources involved in establishing and delivering a full continuum of mental health services, and.

Evaluation Questions:

Evaluation Question1: Appropriate Clinical Services and Outcomes
1a. What range of mental health services can be delivered via telemedicine? Which must be rendered in person?
1b. Are there variations for outcomes for patients receiving telepsychiatry services?
Evaluation Question2: Cost Issues
2a. What is the average cost to provide telepsychiatry services for each of the four phases in this project?
2b. What potential cost savings are there for a)the healthcare system and b)the clients?
Evaluation Question 3:Delivery of Telepsychiatry Services
3a. What procedures/protocols are necessary to provide telepsychiatry services? How does the provision of mental health services via telemedicine differ from the provision of services in person?
3b. Are patients and providers satisfied with the use of telemedicine to deliver mental health services?
3c. How does the use of telemedicine impact the provider-patient interaction?

Data Collection and Analysis: The methodology for data collection and analyses will vary for each of the three research themes.

Evaluation Question 1: Clinical services and outcomes.
1a. Chart analysis will be conducted on all telepsychiatry patients with all services, tests and treatments coded into a database. An equal number of randomly selected charts for non-telepsychiatry patients cared for in the year before the project will be analyzed in the same way. Data between the two groups will be compared for significant differences in the frequency and range of services provided for patients in both groups.
1b. Variables recorded in the Client Information Management System database will be extracted for telepsychiatry patients and compared to the remaining data to gage any differences in specific clinical outcomes, including: average days of inpatient care, outpatient clinic visits, days between triage and initial provider assessment, medication incidents, percent of patients admitted to crisis home, percent of patients admitted to hospitals, utilization of crisis stabilization services, percentage of consumers who terminate treatment prior to completion, coordination of care with other treating professionals or community agents, evidence of coordination with primary care physician, rate of missed appointments, changes in functional assessment scores, consumer satisfaction with outcome of treatment, compliance with person-centered planning,

provider satisfaction, level of care scores, and medications prescribed. These variables are maintained by LifeWays quality management team. Means testing will be employed to compare means of telepsychiatry patients to traditional patients.

Evaluation Question 2: Cost issues

2a/b. The cost issue will be addressed by utilizing a costing frame previously employed in telemedicine studies (Doolittle et al., 1998; Doolittle et al., 1997). Estimates of costs obtained from this frame will be collected with data collected from participating patients as well as existing claims data from patients' charts. To track ongoing costs, a log will be maintained. Data to be logged in includes: all personnel activity throughout the facility; hours devoted to the project on a weekly basis; training and educational development and provision; technical support requirements; marketing efforts. Once the project is implemented, a spreadsheet will be prepared to include all relevant ongoing cost categories (e.g., human resources, hardware/software related; telecommunication related; space; supplies). Data on the spreadsheets will be summed by category to provide cost data.

Evaluation Question 3: Delivery of Telepsychiatry Services

3a/b/c. In-depth interviews will be conducted with LifeWays staff members to document protocols, procedures and resources needed to provide telepsychiatry care as well as traditional onsite care. In-depth interviews and brief surveys will be used to gather data from patients and providers regarding satisfaction and acceptance of telepsychiatry, as well as information needed to improve the delivery of services via telepsychiatry. Thematic content analysis will be conducted on all open-ended interview data. Survey data that asks subjects to rate a question on a Likert scale will be analyzed via descriptive statistics. Key telepsychiatry support staff will be required to keep a logbook documenting progress, challenges and obstacles of the project during planning, implementation, and maintenance. This data will be coded using content analytic procedures. Randomly selected telepsychiatry and traditional psychiatric visits will be audiotaped with patient permission to provide data on the provider-patient interaction.